

# EXHIBIT K

**IN THE UNITED STATES DISTRICT COURT  
NORTHERN DISTRICT OF CALIFORNIA  
OAKLAND DIVISION**

EPIC GAMES, INC.,

Plaintiff,

vs.

APPLE INC.,

Defendant.

Case No. 4:20-CV-05640-YGR

Judge: Hon. Yvonne Gonzalez Rogers

**REBUTTAL EXPERT REPORT OF RICHARD SCHMALENSEE, PH.D.**

**March 15, 2021**

- i. Two-sided platforms are businesses that bring together two different groups of users, and intermediate between them. They are characterized by indirect network effects—that is, the value of the platform to one group of users increases as the number of users in the other group increases. Thus, for example, eBay becomes more valuable to antiques buyers the greater the number of antiques sellers that join the eBay platform to sell their antiques.
- ii. A special category of two-sided platforms is a transaction platform, which focuses on facilitating simultaneous exchanges between members of one group and members of another group. As the U.S. Supreme Court recognized in the *Ohio v. American Express* anti-steering case, transaction platforms are complex, but those complexities must be considered in order properly to assess competition in the market(s) in which the platform competes and in examining the competitive implications of business decisions made in designing and running transaction platforms.
- iii. When Apple released its first mobile device in 2007, third-party developers could not distribute native apps on iOS. It was only with the introduction of the iOS App Store just over a year later that app developers could distribute apps and users could gain access to third-party apps. Initially, app developers could only distribute free apps or “premium” apps. Free apps often were ad-supported. Some developers offered either ad-free versions of the same game and/or enhanced gameplay through their premium offerings, but initially, those required a separate download. With the introduction of in-app purchasing in 2009, users could unlock additional content from within the app, rather than downloading a new app. In-app purchasing functionality provides a number of additional benefits to users and developers.
- iv. The App Store facilitates transactions that simultaneously involve developers and users—downloads, app updates, and in-app purchases that enhance the user’s experience with the app. Users gain greater value from the App Store with more selection in terms of quality apps, and app developers gain greater value from developing iOS apps for distribution through the App Store when

there are more potential users on the other side of the platform. A successful interaction—a download, an app update, or an in-app purchase—will result in a transaction simultaneously provided to the developer and the user. Hence, the App Store is clearly a two-sided transaction platform.

- v. Despite his prior uncertainty on this point, Professor Evans now acknowledges that the App Store, on which this case centers, is a two-sided transaction platform. This implies that strong indirect network effects connect consumers and app developers. However, Professor Evans’ analyses sometimes neglect those effects and are sometimes unrelated to the issues in this case.
  - a. Despite there being no allegations in the Complaint regarding device competition or competition among operating system platforms, Professor Evans devotes a large portion of his report to discussions of competition and market power in what he defines as a foremarket for smartphone operating systems. This serves as nothing more than a distraction from the issues raised in Epic’s Complaint.
  - b. In his discussion of his foremarket for smartphone operating systems, Professor Evans also frequently conflates smartphone operating systems with smartphone devices and focuses on whether smartphones are functionally equivalent to other devices such as personal computer and game consoles. This is, again, irrelevant for the current matter, which concerns game transactions facilitated by the App Store and reasonable substitutes for those transactions.
  - c. Professor Evans also defines an aftermarket for distribution of iOS apps in which the App Store provides distribution services to app developers, even though, as a two-sided transaction platform, its output is transactions, provided simultaneously to developers and consumers. This is precisely the economic error committed by plaintiffs in *Amex* when they focused only on the merchant side of payment card platforms. Professor Evans’ division of the Apple

ecosystem into a foremarket and an aftermarket is artificial and rests on an incorrect treatment of switching costs and neglect of the strong bilateral indirect network effects that link consumers and app developers.

- d. The correct way to analyze iOS and the App Store is as a single, integrated, two-sided transaction platform, in which the App Store is Apple’s mechanism for facilitating transactions between developers and end-users.
  - e. Professor Evans’ arguments imply that all “walled garden” business models, regardless of their scale, involve monopolization of app distribution and, generally, an illegal tie between distribution and payment processing. Professor Evans gives no defensible reason why his arguments do not imply that the business models of the game console manufacturers and all other “walled garden” business models should be demolished along with the App Store’s business model, with unpredictable effects.
- vi. The fact that the App Store is a transaction platform has important ramifications for assessing market definition in this case.
- a. First, in assessing the relevant market(s) at issue, one cannot simply look at one group of users of the platform in isolation; one must consider the market in which the iOS App Store, a transaction platform, competes for transactions by engaging both users and developers. The evidence that I have reviewed indicates that competitive conditions differ among categories of apps; for some apps (such as games), developers and users face a broader set of viable substitute transaction platforms than for other apps. In particular, the evidence presented by Drs. Hitt and Lafontaine demonstrate that both game developers and consumers can and do regularly substitute across platforms for game transactions, and the developers of games and the developers of non-game apps are largely distinct. I agree with

Professors Lafontaine and Hitt that a relevant product market for game transactions on digital transaction platforms is the appropriate antitrust market to assess Epic’s claims in this matter.

- b. Hence, I disagree with Professor Evans’ attempt to cluster all apps into a single relevant antitrust product market. To assess whether Apple’s conduct that is at issue here has harmed competition and whether Epic and other similarly situated game developers have suffered antitrust injury, it is critical to center the product market definition on game transactions.
- c. Professor Evans’ prior research shows that failure to take explicit account of the strength of indirect network effects when performing a hypothetical monopolist or SSNIP test in the context of two-sided platforms leads to antitrust markets that are defined too narrowly and market power that is overstated. Yet he neither presents nor employs estimates of the strength of those effects in either his foremarket or aftermarket SSNIP tests. Both tests suffer from additional shortcomings as well.
- d. Professor Evans’ foremarket SSNIP test is unrelated to the issues in this case, because this case does not involve operating system or device competition but rather involves restrictions that Apple has imposed on transactions involving iOS apps. Professor Evans’ aftermarket SSNIP test simply makes no sense. It is merely an attempt to assess whether the App Store, acting alone, could profitably increase price. His conclusion that it could is inconsistent with profit maximization by Apple.
- e. Similarly, the assessment of the relevant geographic market must take into account the options available on both side of the transaction platform. U.S. users of iOS mobile devices may face constraints that make switching to non-U.S. App Store storefronts challenging. Given these constraints, the two sides of the relevant geographic market are

consumers in the U.S. and developers both in and outside the U.S. who can sell to them.

- f. Professor Evans’ discussion of the relevant geographic market is curiously disconnected from the issues in this case. In his discussion of the relevant geographic foremarket Professor Evans notes that leading smartphones are generally available globally, despite there being no allegations by Epic regarding a relevant market or anticompetitive conduct of any sort for smartphones. He carves out China because of its government’s policies and then simply adopts the same geographic market for his aftermarket. Professor Evans does not discuss which consumers are in the relevant market. It is my understanding that the U.S. antitrust laws do not consider effects on non-U.S. consumers, so the geographic market must center on transactions facilitated by the App Store that link U.S. consumers with developers in and outside the U.S. who can sell to them.
- vii. The fact that the App Store is a transaction platform also has important ramifications for assessing market power and aftermarket claims in this case.
  - a. In using market outcomes to assess Apple’s market power in this market, the two-sided nature of the market requires careful analysis of transaction prices; focusing only on one portion of the pricing structure, such as the commission that Apple charges developers for access to the platform, while ignoring the zero price that the App Store charges users, can lead to erroneous conclusions. Any analysis of Apple’s pricing power must consider whether Apple can charge a supracompetitive transaction price—across both sets of users— and profitably reduce market output or whether the existence of other transaction platforms, as well as traditional single-sided businesses such as a brick-and-mortar retailer like GameStop which acquires inventory and sells it to its customers, would make that unprofitable.

- b. Professor Evans’ analysis of the App Store’s profit margins does not demonstrate that it has monopoly power. High accounting profitability on its own does not establish the existence of market power, let alone monopoly power. In addition, accounting profitability can be a very poor measure of economic profitability, particularly for businesses such as Apple with substantial investments in intellectual property.
- c. Mr. Barnes’ calculations of the App Store’s accounting profit margin involves using revenue to allocate joint costs among lines of business. There is no economic justification for such allocations, which Apple does not perform in the ordinary course of business. In addition, he has seriously incomplete information on which categories of costs are included in this calculation.
- d. Mr. Barnes’ comparison of the App Store to other digital platforms neglects important differences among them. It is important to note that many other successful technology companies, large and small, earn similar, and at times higher, operating margins than Apple as returns on their intellectual property.
- e. Despite Professor Evans’ claims, the App Store’s commission rates are in line with rates currently charged by other online stores, and since the App Store’s launch, Apple has only reduced elements of its pricing structure over time.
- f. Likewise, in conducting any structural analysis of market power, such as through the use of market shares, one must be especially careful in interpreting these static measures. Online platforms for which indirect network effects are important and output can easily be expanded to meet demand can experience rapid changes in market share.
- g. The two-sided nature of the App Store is important to keep in mind in assessing the claim that switching costs and lock-in create an aftermarket. To assess this, one must consider whether (and to what extent) users of both groups face switching costs and lock-in, since



loss of either group can doom a transaction platform. Professor Evans simply asserts that switching costs cause user lock-in but does not estimate its importance and neglects the fact that game developers regularly multi-home across platforms.

- viii. The fact that the App Store is a transaction platform also has important ramifications for assessing competitive effects in this case.
  - a. The assessment of competitive effects must also take into account the two-sided nature of the App Store. Because the pricing structure of a transaction platform can be quite complex, rigorous analysis of pricing will be complex and may not lend itself to tractable analysis of overall effects. Assessing, instead, the impact on output may be more straightforward, but especially in the context of apps, where many are distributed at no price to users or developers, even those may require use of several different measures to draw any conclusions.
  - b. Professor Evans doesn’t address the voluminous evidence indicating that the effect of Apple’s policies has been to produce a healthy, thriving ecosystem that has brought enormous benefits to developers and consumers and yielded Apple a return on its investments in intellectual property. Despite Professor Evans’ argument that Apple has had substantial market power since 2010, App Store commission rates established two years earlier have not increased, and the number of apps and app developers has skyrocketed since then.
- ix. The fact that the App Store is a transaction platform also carries with it implications for assessing the role of IAP and whether there exists a “tie” between the App Store and IAP. Examining this question through the proper lens, I conclude that there is no anticompetitive tie, for the following reasons.
  - a. From an economic perspective, IAP cannot be considered in isolation, because it is integral to facilitating transactions between users and developers. It is a feature of the platform in which delivery of digital content is inextricably and simultaneously linked to payment for that

content. Most online stores require the use of their own payment processing solutions, including most platforms cited by Mr. Barnes. IAP is not a distinct product offering, and there would be no separate demand for in-app payment processing provided by a third party unless use of a third party enabled developers to avoid paying commissions..

- b. The examples discussed by Professor Evans in support of his assertion that a separate demand exists merely illustrate the unsurprising fact that developers would prefer not to pay a 30 percent commission for Apple’s services and the use of its intellectual property and would prefer to pay a lower price or none at all.
- c. Even taking all of Professor Athey’s claims as true, neither multi-platform app stores nor multi-platform payment systems have the potential in theory or in practice to drastically reduce barriers to new competition in mobile operating systems. Multi-platform app stores cannot ensure compatibility of apps across different platforms. Whether or not a version of each particular app becomes available on an additional platform comes down to the respective decisions of app developers as well as the platforms themselves.
- d. Even if one were to artificially consider payment processing separate from the rest of the platform, there is no economic basis for considering only payment processing for iOS apps, and given Apple’s negligible share of all online payment processing in the U.S., the notion that Apple is employing a tie to achieve market power in this broader market is not an economically credible one.
- e. In Professor Evans’ SSNIP analysis, he incorrectly compares the App Store commission rate to payment processing fees. While the alleged competitive level of payment processing fees cited by Professor Evans covers only services related to payment processing for in-app

transactions, the commission rate in the App Store is not a fee for payment processing

- f. Even if one were to artificially view IAP as a distinct product offering, there is no sense in which use of the App Store has been tied to use of IAP. Developers that distribute their apps through the App Store can—and do—choose other forms of monetization that do not require use of IAP. In addition, for cross-platform apps such as Fortnite, users that wish to use Fortnite V-Bucks for their iOS gameplay may acquire those V-Bucks on other platforms. Neither developers nor consumers are required to use IAP in order to transact.
- g. The integration of IAP in the App Store has generated real benefits to developers and consumers that—as Professor Evans has acknowledged—may not be replicable if in-app payment processing were performed by a third party. Most importantly, neither Epic nor Professor Evans has presented a workable alternative to the use of IAP to collect commissions on in-app transactions.
- h. Finally, Professor Evans’ analysis of harm to innovation is extremely speculative. The App Store was a significant innovation, and Apple has worked to improve it over time. That some developers may believe it falls short of perfection is hardly evidence of abuse of monopoly power. In addition, Apple’s substantial ongoing investments in the wider iOS ecosystem benefit consumers and developers alike.